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ABSTRACT

This teaching module for high school students and adults examines the future of zero population growth in 26 countries by the year 2000. The module contains an essay for students to read, followed by exercises, activities, and discussion questions based on the essay. Objectives include understanding the components of population change, identifying important issues which may arise as societies approach zero population growth, and evaluating options involved in planning for the future. The essay explores aspects of future life in the selected countries which will probably reach zero population growth by 2000. These countries, all of which are industrialized and relatively wealthy, include Australia, France, East and West Germany, Japan, the United States, and Russia. It is hypothesized that no-growth society in these countries will produce the following: large numbers of people in the older age groups and a consequent need to plan for pensions, health care, and other services; fewer opportunities for promotions in jobs but more emphasis on equality; and less pressure on energy, housing, transportation, and the environment. Activities based on the essay include a crossword puzzle, small group work, role playing, and opportunities for students to describe their predictions about the future. The module also includes an issue of Interchange, the Population Reference Bureau newsletter, which reports on population related matters and describes new teaching tools. (AV)

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THE FUTURE AND POPULATION: WHAT WILL A NO-GROWTH SOCIETY BE LIKE?

A Teaching Module

POPULATION REFERENCE BUREAU, INC.

1337 Connecticut Avenue, N.W.
Washington, D.C. 20036

SP-011420

ACKNOWLEDGEMENTS

We are indebted to Lincoln H. Day for his excellent *Population Bulletin* "What Will a ZPG Society Be Like" (Population Reference Bureau, Vol. 33, No. 3, June 1978) on which this teaching module is based, and from which most of the graphic material is taken. Thanks also to Patricia Cancellier, who developed the Glossary and made many other valuable contributions and to Arthur Haupt whose role as editor is greatly appreciated. In addition, we are grateful to Thomas Kane, Jean Van der Tak and Robert P. Worrall for their sound advice and encouragement.

This module is designed to be used for teaching purposes. Hence it is not necessary for teachers or other group leaders to obtain permission to reproduce any part of it.

inter-change

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A Thought-Provoking New Teaching Module Asks:

What Will A No-Growth Society Be Like?

While rapid population growth continues in most of the world, it appears that approximately 26 countries may reach zero population growth within a generation or two. The effects of a zero rate of growth are explored in the new teaching module accompanying this issue of INTERCHANGE, entitled: "The Future and Population: What Will a No-Growth Society Be Like?" It is based on a recent Population Reference Bureau *Bulletin* (Vol. 33, No. 3) by demographer Lincoln Day.

In the module, a student reading notes that it is difficult to predict exactly what a no-growth society will bring. However, Lincoln Day has made some "educated guesses," which are summarized in the beginning essay. Highlights:

- the numbers of people in each group will stay the same: gone will be "baby booms" and "baby busts."
- there will be a larger number of people in the older ages, requiring planning for pensions, health care, and other services.
- there will be fewer opportunities for promotions in jobs but more emphasis on equality.
- there will be less pressure on energy, housing, transportation, and the environment than otherwise.
- the consequences of a stationary population are more likely to be desirable than undesirable.

Following the essay are exercises, activities, and discussion questions based on the essay. They include a crossword puzzle, a matching activity, small group work, role playing, chart completion, and opportunities for students to describe their predictions and preferences for their own futures. Maps, photos, cartoons and tables are included in the module.

Cartoon removed by ERIC

Courtesy of the Hong Kong Family Planning Association.

New Format

INTERCHANGE and the teaching module take on a new format with this issue. The population essay is now included in the teaching module as a student reading, while INTERCHANGE newsletter reports on population education happenings and new teaching tools. Write and tell us your opinion of the new format including suggestions for further change or a return to the old format.

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$$ *Pop Ed Amendment Signed by President* $$

A compromise version of the Population Education Amendment has been passed by the House and the Senate, and signed by the President. The amendment provides grant and contract money for pop ed teacher training, curriculum development and research through the Elementary and Secondary Education Act (ESEA).

The Commissioner of Education is to carry out the program in consultation with the Office of Population Affairs. The funding, the major source of disagreement between the original House and Senate versions, is now set at 10 percent of the Commissioner's discretionary funds. It is not known at this time what that amount will be. The money will be appropriated in the supplemental appropriations bill which should be passed by late January or early February 1979.

HEW is now completing the preliminary regulations governing grant applications for pop ed projects. The next step will be to hold public hearings on the entire Elementary and Secondary Education Act, of which the Population Education Amendment is a part.

It is expected that money will be available for population education projects by late April or early May of 1979.

The Office of Education (OE) seeks recommendations from individuals and groups concerning the new Population Education Amendment (limited to elementary and secondary programs and explicitly omitting sex education).

Please write to: Dr. Ernest A. Crider, State and Local Educational Programs, Room 2083, FOB-6, 400 Maryland Avenue, S.W., Washington, D.C. 20202.

Also write expressing the need for adequate funding to the Appropriations Subcommittee, Labor-HEW, U.S. House of Representatives, Washington, D.C. 20515, and to the same subcommittee of the U.S. Senate, Washington, D.C. 20510.

In the Meantime . . .

It's time to send for application forms and guidelines from the Office of Environmental Education, 400 Maryland Ave., S.W., Washington, D.C. 20202. Their program provides grants for population and environmental projects for both community and formal education. It is essential to follow the guidelines! The deadline for receipt of proposals has not been set, but usually occurs in January or February of 1979.

New Materials

• "Black America" is the title of the latest edition of *Population Profiles*, published by the Center for Information on America. The article by Leon Bouvier and Everett Lee is an update of their 1974 issue, and provides new data on the progress blacks have made in the areas of income, employment and education as well as black population trends.

Single copies are 50¢; write: The Center for Information on America, Washington, Connecticut 06793.

• A kit of materials on population growth and world development, entitled *Population '78*, has been produced by New Internationalist Publications, Ltd., in cooperation with the U.N. Fund for Population Activities. The kit contains: COUNTER-INFORMATION, a poster; TOO MANY SLAVES, a cartoon strip; THE EXPERT, a wallchart; POPULATION AND PEOPLE, an up-to-date summary of facts and trends; and POPULATION AND DEVELOPMENT, a review of data.

Write: New Internationalist Publications, Ltd., 62A High Street, Wallingford, Oxon. OX10 OEE, U.K. Enclose US $2 to cover postage costs.

• Zero Population Growth has revised and improved their Population Education Resource Kit for teachers and their Population Education Leader's Kit for workshop leaders.

The teacher's kit contains background information on pop ed, an expanded collection of ready-to-use classroom activities and a new list of sources and resources. The leader's kit contains all of the material in the teacher's kit plus a revised guide to conducting pop ed workshops.

Both kits are available from Zero Population Growth, 1346 Connecticut Avenue, N.W., Washington, D.C. 20036. The teacher's kit is $3; the leader's kit, $4.

Holiday Gift Ideas!

Give a teacher you love (including yourself) a classroom set of PRB teaching modules, charts, handbooks, and/or a $5 educator's membership. See box for details.

TEACHERS' CORNER

INTERCHANGE would like to have a new column called "Teachers' Corner". It will feature population education activities developed by teachers across the country. We invite you to send in a brief description of a pop ed activity carried out successfully in your classroom. If you are willing to send copies of your teaching activity to others, please include your return address plus your charge for xerox and postage.

New Pop Ed Leadership

Joining Elaine Murphy at PRB's Population Education program are Patricia Cancellier as Assistant Director and Marge Dahlin as Staff Associate. Cancellier, formerly the Executive Director of the New York City Chapter of Zero Population Growth, has a Masters of Public Health in Population Planning and Health Education.

Dahlin comes to PRB from the Population Education program at Zero Population Growth, Inc. (ZPG) where she was the Assistant Director. She has a Masters degree in Family Environment and is presently a doctoral candidate at the University of Maryland.

At ZPG, Tom Flaherty has been named Population Education Director. Before going to ZPG Flaherty was on the staff of the Research Division of Carnegie Mellon Institute. He has a Masters of Public Health in Population. Nancy Ivester Fitzpatrick, previously Population Education Specialist at ZPG, is now Assistant Director.

Thanks to a Good Friend

The essay on land use featured in the last issue of INTERCHANGE was based on research of Judith Seltzer, former Director of Population Education at PRB. Ms. Seltzer is currently working on her Ph.D. in Population Dynamics at Johns Hopkins. We are grateful for her continuing interest in pop ed.

PRB Materials and Memberships

Are you interested in rounding out your INTERCHANGE collection? Back issues of INTERCHANGE and the TEACHING MODULE are available for $1.00 each. Two or more copies are 50¢ each.

Titles include:

- "The Cost and Value of American Children," September 1977
- "American Way of Life: A Way of Death?" November 1977
- "Marriage, Divorce and Living Together," January 1978
- "World Population: Growth on the Decline" May 1978
- "U.S. Land Use: Managing a Finite Resource" September 1978
- "The Future and Population: What Will a No-Growth Society Be Like?" December 1978

To order, simply send a check to the address below.

If you find INTERCHANGE interesting and useful, you would probably enjoy receiving other Population Reference Bureau (PRB) publications:

- INTERCOM—The monthly population news magazine
- POPULATION BULLETIN—a bimonthly in-depth study of one population topic
- WORLD POPULATION DATA SHEET—an indispensable survey of 13 variables on 162 nations
- PRB REPORTS—periodic summaries of timely issues

PRB Educator Members receive all the above publications, between 25 and 30 pieces a year, for only a fraction of the regular membership fee.

High school teachers (and all students) pay only $5 a year; college teachers pay just $10. The regular individual membership is $20 a year.

To join, simply send your name, address (and school affiliation if different from address), and check to: Population Reference Bureau, P.O. Box 35012, Washington, D.C. 20013.

Interchange is . . .

a publication of the Population Reference Bureau, published quarterly during the academic year. This issue was written by Elaine M. Murphy and Patricia Cancellier, with the editorial assistance of Arthur Haupt. Educators may receive a one-year free subscription to Interchange upon request. The purpose of the newsletter is to further the goal of infusing population materials into U.S. schools by: (1) presenting information on population-related issues; (2) distributing classroom materials; and (3) reviewing developments in the field of population education. Interchange depends upon an exchange of information and ideas and thus openly solicits correspondence from its readers.

The Population Reference Bureau, Inc., 1337 Connecticut Ave., N.W., Washington, D.C. 20036, is a non-profit education organization established in 1929. The Bureau is a source of information on the facts and implications of national and world population trends.

100 Percent Recycled Paper

THE FUTURE AND POPULATION: WHAT WILL A NO-GROWTH SOCIETY BE LIKE?

By ELAINE M. MURPHY

Grade Level High School and Beyond

Time Needed Approximately 30 minutes for essay. Additional activities are in 15-30 minute segments, which may be used alone or in combination. If all activities and suggested films are used, five 45-minute class periods are needed.

Contents 1) Student reading (essay), "The Future and Population: What Will a No-Growth Society Be Like?" 2) Glossary; 3) Crossword puzzle; 4) Observing and Comparing (chart completion); 5) Matching; 6) Tough Decisions (short, written answers for class discussion); 7) Vote! (small group decision-making); 8) National Planning Board (role play); 9) Make a Prediction (brief essay); 10) Feelings (brief essay); 11) Additional Activities (making models, collages, slide shows); 12) Supplemental Reading and Audiovisual Aids.

Goal To enable students to understand the consequences of social change and to prepare them both to better cope with and to help create their futures.

Objectives Students, through discussion, written work and creative projects will:

- develop basic skills in critical reading, writing, and speaking and understanding of maps, charts, and tables
- increase vocabulary by acquiring commonly used demographic terms
- gain practice in political decision-making for good citizenship
- propose and evaluate options involved in planning for the future
- express feelings about likely societal change
- appreciate the variety of viewpoints possible in discussing complex issues
- identify benefits, drawbacks and important issues which may arise as societies near zero population growth
- demonstrate an understanding of the components of population change
- describe the relevance of past and present population change to their futures
- draw conclusions about the relationship of various factors to population change

Materials All materials (except audiovisual aids) are included in this unit. Teachers are invited to reproduce the module for their students or to order classroom sets. (It's cheaper than xeroxing! Ordering information on last page.) If desired, teachers may utilize the charts or maps for overhead projectors.

Procedure

1. Ask students to read the essay, either outside or during class, and to job down noteworthy comments, questions, complaints, or suggestions for further research. Discuss the reading by asking for students' comments, etc.
2. Assign other activities as desired. The crossword puzzle, matching exercise, and chart completion have specific answers which are given on page 12. While the other exercises are based on the essay, they do not have correct answers but involve students' written or oral presentation of their own judgments and feelings. The National Planning Board exercise could be more valuable if students have time to gather additional information to support or refute various positions.
3. Audiovisual aids are favorite ways to present complex ideas in a vivid way, but must be ordered in advance. Some recommended A-V aids are listed on page 13.
4. Out-of-class research or creative projects are recommended for the student particularly interested in population change. Additional reading is listed on page 13; ideas for projects are on page 12.
5. Enjoy teaching this unit! We welcome your comments, including suggestions for improvement.

THE FUTURE AND POPULATION: WHAT WILL A NO-GROWTH SOCIETY BE LIKE?

At a time when the world's population is projected to double in the next 41 years, it may seem strange to speculate on what life in a nongrowing society would be like. In spite of recent decreases in the rate of population growth worldwide, continued growth—mostly in developing, poorer nations—means that this year about 70 million new inhabitants will join the 4.2 billion already here. By the year 2000, world population is estimated to increase by 50 percent to about 6 billion, a source of concern for environmentalists, economists, and governments.

Yet, while rapid growth continues in most of the world, the prospect of zero population growth (zpg) is not so far off for 26 countries (see Figure 1 and Table 1). Together these countries—all "modern" in the sense that they are industrialized, relatively wealthy, and urbanized—make up about one quarter of the world's population. Nineteen countries can expect to reach zpg within a generation or two (if there is no immigration) and seven others are at or very near zpg now (Austria, Belgium, East Germany, West Germany, Luxembourg, and the United Kingdom).

What will life be like in these countries when they stop growing? We know little about a no-growth society because such a state has been achieved only rarely and briefly in the past. In fact zpg resulting from long-term low fertility rather than from increases in mortality or emigration is unique to recent times. (In the world as a whole, of course, zpg will be reached only when births equal deaths; for individual countries the zpg equation reads: births plus immigration = deaths plus emigration.)

The 26 countries approaching or at zpg all have low fertility and low mortality. Demographer Lincoln Day believes that immigration and emigration will probably not be an obstacle to achieving zero rate of growth:

"... The fact that all countries of controlled fertility which have experienced large-scale immigration since World War II—Switzerland, the United Kingdom, West Germany, Australia, Canada, and the U.S., for example—are now questioning the advisability of such major influxes suggests that ... the scope for population growth as a result of immigration will be much less in the future than it has been in recent decades." Nor is there likely to be much emigration away from these countries.

Changes, Benefits, Drawbacks

Because of the lack of historical information about such zpg societies, one

Figure 1. Twenty-Six Countries At or Approaching Zero Population Growth, about 1976

Source: United Nations, *Demographic Yearbook* 1975 (New York: 1976).

Note: Please see Glossary at end of essay for definition of terms.

must make "educated guesses" about what they will be like. The demographic changes (those associated with births, deaths, age structure and migration) can be estimated with some confidence, but the meaning of these changes are less clear. They depend heavily on the kind of decisions and planning a society makes.

Eventually, the 26 countries should become "stationary"—not only the size of the population, but the number of people in each age group (cohort) will remain unchanged from year to year. In a country like the U.S., there would be the same number of elementary and high school students entering school in September as there were the year or decade before. Both the crowded classrooms occasioned by the post-World War II Baby Boom and the empty classrooms of recent years due to decreasing birth rates would be avoided. Of course there still could be change as families move in or out of school districts.

Similarly, there would be approximately the same number of people year after year at the ages most likely to enter the labor market, and most likely to seek housing. This would be a change from recent years in the U.S., when the Baby Boom cohort (born 1947 to 1961) has been unable to find enough jobs or housing for its large numbers, much larger than those born before or after "the Boom." These changes are depicted as bulges and indentations in the age-sex pyramids (see Figure 2) demographers use to describe the numbers of people at various ages in a country's population. Figure 2 contrasts the nearly equal age groups of a stationary population with the bulge in the U.S. population due to the Baby Boom, and the ever-larger cohorts of children in Mexico's rapidly growing population.

Table 1. Countries at or Approaching Zero Population Growth through Low Fertility, about 1976

Australia	Germany, West	Poland
Austria	Greece	Singapore
Belgium	Hungary	Sweden
Bulgaria	Italy	Switzerland
Canada	Japan	United Kingdom
Denmark	Luxembourg	United States
Finland	Malta	U.S.S.R.
France	Netherlands	Yugoslavia
Germany, East	Norway	

An Older Population

A stationary population with low fertility and low mortality would be "older" than a growing population. This is because a larger proportion of the total population would be in the older age groups than is true of growing countries adding large numbers of young people through births. A glance at Figure 2 shows how much "younger" Mexico's population is than the stationary population shown.

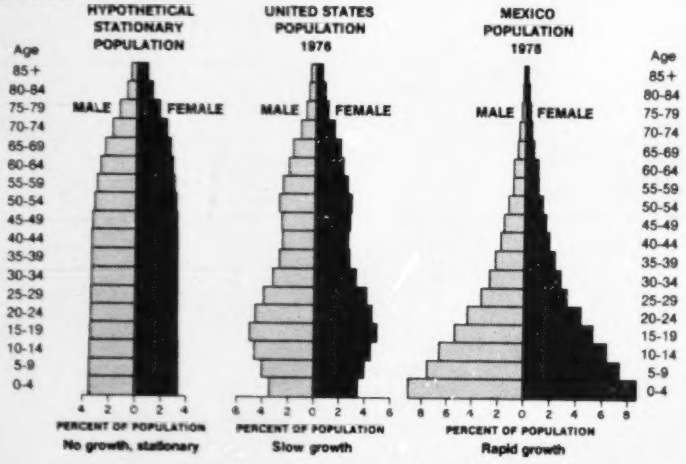
In a stationary population, the median age—the point at which half the population would be younger and half older—would be 37 (compared to 1975 median ages of 29 years in the U.S., 27 in Canada and 35 in Sweden). Some have expressed fears that such a society might be more conservative and "old-fashioned" than would be true if there were a higher proportion of younger to older people. However, considering the closeness of the hypothetical median age to the actual median age of Sweden—a country known for social progress—the fear appears groundless. Moreover, an older population might actually be more creative. A study of Nobel Prize winners found the average age of the recipients to be in the mid-to-late thirties when the prize-winning work was done.

An older population will force society to come to grips with social security and other programs for the elderly. This is because in a stationary population the percent of people in the traditional retirement years (65 and over) needing social security payments will increase, while the percent in the working ages paying social security taxes (20-64) will remain the same (see Table 2). This increased burden could be lessened if more people chose to work after age 65, continuing to pay into rather than draw out of the social security fund.

Another possible response to this problem will be to shift the burden of support for the elderly to the elderly themselves through increased payment into pension funds during the years they are earning most. In addition, old-age pensions could be adjusted in relation to the individual's income and wealth from other sources. A retired person with a high income from investments in real estate, for example, would receive less than a retired person who depends totally on social security payments for a living.

Will an older population be a less competitive one? A stationary population enjoying low mortality will give young workers less opportunity for promotion than currently exists. Why? The U.S., when it becomes stationary, will have over 90 percent as many people at age 50 as at age 20 (1970 figures: about 65 percent as many 50-year-olds as 20-year-olds). More older workers mean less "room at the top." While this will require adjustments, there could be some benefits. Fewer jobs at the top might mean that people compete less to "get ahead" and place more emphasis on equality in such basic services as health care and perhaps in income as

Figure 2. A Stationary Population Age-Sex Structure and Contrasts



Source: Lincoln H. Day, *Population Bulletin*, Vol. 33, No. 3 (Population Reference Bureau, Washington, D.C. 1978).

well. If that occurs, the difference in salary between older and younger workers will be much smaller.

What of labor shortages? There is no need for labor shortages to occur in a stationary society, but if they do, an increase in the number of working women could fill the gap. This is true even in countries like the U.S. (and Sweden, Hungary, Czechoslovakia, and the U.S.S.R.) where over 50 percent of working age women are already in the labor forces. This percent could increase considerably to approach the 90-95 percent of men in the same age categories who are in the labor force.

TABLE 2: Age Structure of U.S. Population, 1976 and Stationary*

	Percentage of U.S. population		
Age group	1976	Stationary	Change
under 20	34%	27%	-8%
20-64	55	55	0
65 and over	11	19	7

Sources: U.S. Bureau of Census, "Current Population Reports," Series P-25, No. 704
*Assuming a total fertility rate (see glossary) of 2.1 and no immigration.

How "Old" Is Old?

Would an older zpg society be less healthy? Certainly there will be an increase in both the numbers and percent in the very oldest ages, signaling a need for an increase in medical care for the elderly, nursing homes, and other special needs. However, being "old" is a fuzzy concept and one's well-being and independence in older years depend largely on lifestyle in younger years—including consideration of smoking, diet, exercise and attitudes, as well as levels of environmental pollution and noise. Thus the numbers of the truly infirm elderly can be lessened to a great extent by decisions individuals and governments make.

Happily, the needs of an older population are often similar to those of children, particularly those with two working parents: public transportation, safe places to walk, parks, shops and plazas at which to meet, a healthy environment. The combination of pressure from a larger number of working women who need these facilities for their children and from the increasing political power of the elderly could make such services a reality in the zpg society to come. Such improvements in communities also coincide with the need to conserve energy by avoiding urban sprawl and the resulting dependence on the automobile.

A stationary population does not necessarily lead to any predictable economic change; there could be business improvement or decline, full employment or high unemployment, industrial practices which protect or harm the ecology. In most cases, families with fewer children have more money to spend on items other than the bare necessities, so there could be an increase of purchases in higher quality goods and recreation. As population changes add more people of older ages and fewer of younger ages, baby food manufacturers may have to make adjustments while those who cater to mature adults will find more customers. If there is less moving from home to home and town to town (due to fewer chances for job promotions) real estate speculation may suffer, but housing prices will then cease to go up so drastically, helping to battle inflation.

ZPG—The Good Life?

The transition to a nongrowing, stationary population will bring changes but the future of any society depends on many factors, not just changes in growth patterns or age structure. What a society values, its tastes, its educational and cultural levels, its environmental practices, its commitment to sound planning and human welfare as well as many other factors are often as important as—and in some cases, more important—than population change per se. However, to the extent that population change is important, the consequences of a stationary population are far more likely to be desirable than undesirable, according to Lincoln Day. In the U.S., this view was espoused by the President's Commission on Population Growth and the American Future which recommended that "the nation welcome and plan for a stabilized (zpg) population."

If one accepts this view then other questions arise. How large will the 26 countries approaching zpg be when they stop growing? Some of them will be 20-50 percent more populous than they are now. Since the sheer size of a population can have enormous impact on a country's consumption of natural resources (such as oil), needs for food and social services, and levels of pollution, should governments try to speed up their approach to zpg? If so, by what policies? And what of the rest of the world?

In an age of global interdependence can the slow- or no-growth countries remain aloof from the consequences of rapid population growth elsewhere? Will pressure for immigration to zpg countries increase? How will—and how should—such countries respond?

Glossary

AGE STRUCTURE. The composition of a population as determined by the number or proportion of males and females in each age category. The age structure of a population is the cumulative result of past trends or fertility, mortality, and migration.

COHORT. A group of people who share a common demographic experience through time. For example, the birth cohort of 1900 would be the people born in that year. There are also marriage cohorts, school class cohorts, etc.

DEMOGRAPHER. One who studies human populations, including their size, composition, distribution, density, growth, and other characterisitcs, and the causes and consequences of changes in these factors.

EMIGRATION. The process of leaving one country to live in another.

FERTILITY. The actual reproductive performance of an individual, a couple, a group, or a population.

IMMIGRATION. The process of entering one country from another to take up permanent residence.

INFANT MORTALITY RATE. The number of deaths of infants under one year of age in a given year per 1,000 live births in that same year.

MORTALITY. Deaths as a component of population change.

STATIONARY POPULATION. A population with both a zero rate of growth because the birth rate equals the death rate and an unchanging composition because birth and death rates have remained constant over a long period of time.

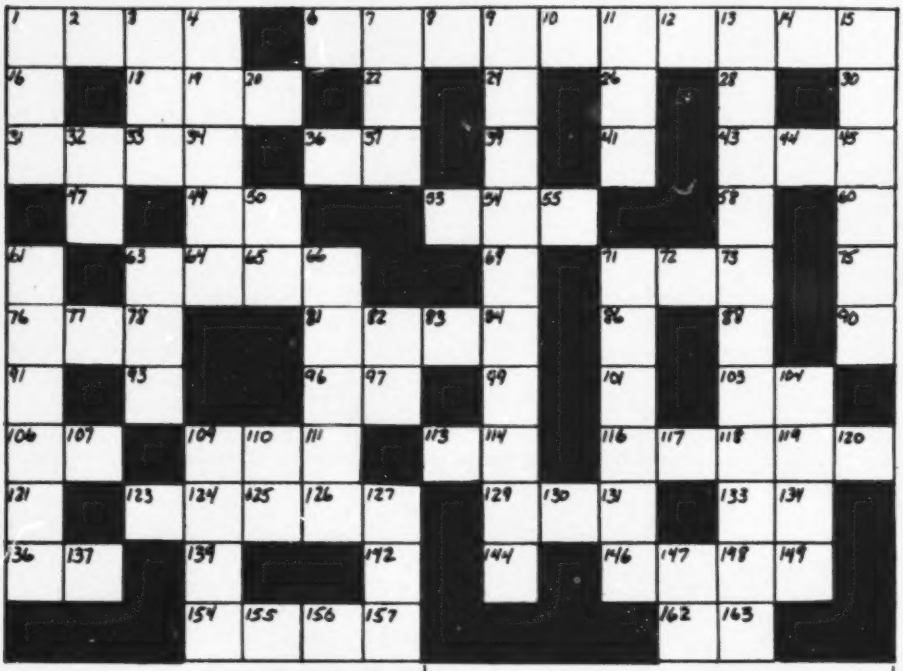
TOTAL FERTILITY RATE (TFR). The average number of children that would be born to a woman during her lifetime if she follows the fertility pattern of a given year.

URBANIZATION. Growth in the proportion of a population living in urban areas.

ZERO POPULATION GROWTH (ZPG). A population in equilibrium with a growth rate of zero, achieved when births plus immigration equal deaths plus emigration.

Source: Arthur Haupt and Thomas T. Kane, *Population Handbook* (Population Reference Bureau, Inc., Washington, D.C., 1978).

POPULATION PUZZLE



ACROSS

1 ___ ___ ___ ___ population growth: a balance between births plus immigration and deaths plus emigration

6 The number of people in a country

18 Initials of the International Labor Organization, a group concerned with unemployment due to rapid population growth

31 Demographer Lincoln Day believes that while a stationary population will not automatically bring the ___ ___ ___ ___ life, it will make it more possible

36 Pronoun

43 Countries approaching zpg should plan so that the needs of a larger number of older persons will be ___ ___ ___

49 Latin for "and": "___ ___ tu, Brute?"

53 Initials for the World Health Organization, a group concerned with the effect on health care of rapid population growth

63 While 26 countries in the developed world approach zpg, more of the poorer, developing countries continue to ___ ___ ___ ___ rapidly (although less rapidly than before)

69 An article

71 How ___ ___ ___ the U.S. will be when it reaches zpg depends primarily on future numbers of births and level of immigration

76 Initials of the National Organization for Non-parents

81 In a stationary population, there will be fewer jobs ___ ___ ___ ___ "up the ladder"; that is, fewer chances for promotion for younger workers because there will be more older workers to hold those jobs

96 Short for "mother"

103 Nickname for "Albert"

106 Short for "regarding" or "in reference to"

109 Short for "Joseph"

113 7th note in the scale

116 In a stationary population, the ___ ___ ___ ___ ___ number of people will not change; moreover the numbers of people in various age groups will not change from year to year

123 The needs of the elderly are often the same as those of the ___ ___ ___ ___ ___, for example safe parks and walkways, convenient transportation and adequate housing

129 Initials of the National Institutes of Health, where the Center for Population Research is located

133 A "being" verb

136 Old fashioned term for "you"

146 After World War II, the birth rate ___ ___ ___ ___ up resulting in the Baby Boom

154 While some groups advocate reaching zpg ___ ___ ___ ___, others would like to see a gradual approach to a nongrowing state

162 To reach zpg, births plus ___ ___-migration must equal deaths plus out-migration

DOWN

1 Abbreviation for zero population growth

3 A city in a rapidly growing country in South America

4 A stationary population would be ___ ___ ___ ___ ___ than a growing one

7 To reach zpg, births plus in-migration must equal deaths plus ___ ___ ___-migration

9 In a stationary population, both the total number or people plus the numbers in various age groups (the age structure) remain ___ ___ ___ ___ ___ ___ ___ ___ ___ ___

11 The ___ ___ ___ structure of a population refers to the proportions of people in various age groups; in this sense, a country could be "young" or "old"

13 In the U.S., if the birth rate returns to the "replacement" level of 2.1 children per family, zpg will never be reached if current legal___ ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ continues at its present level of about 400,000 per year

15 Every ___ ___ ___ ___ ___ ___ in the world could be described in terms of its population characteristics—growth rate, birth rate, death rate, migration, distribution and age structure

32 "___ ___, my!"

50 Preposition

61 While conservation and new technologies are essential, reaching zpg should help to save ___ ___ ___ ___ ___ ___

63 Initials for Gross National Product, a measure of a country's output of goods and services. Countries reaching zpg are high in this measure; most fast-growing countries are low (exception: oil-producing countries)

66 The changing role of ___ ___ ___ ___ ___ can be thought of both as a cause of the low birth rate and as an effect of it as well

71 In a stationary population, almost all ___ ___ ___ ___ ___ ___ ___ will be planned and all children will be wanted children (at least to begin with!)

82 Short for "father"

104 During the transition to zpg in the U.S., there will be some problems as the Baby Boom cohorts (born 1947-1961) need to be supported in their old age, but this extreme situation will not ___ ___ ___ ___

109 When those born during the Baby Boom reached ages 18-22, they found there were not enough ___ ___ ___ ___ for them

110 French for "where"

127 A weapon

147 A greeting

OBSERVING AND COMPARING

Country	Rate of natural increase	Years to double population	Per capita G.N.P.[a]	Urban population	Life expectancy	Infant mortality[b]	Population under 15 yrs. old
Countries which have stopped growing							
United Kingdom	0.0%	—	$4,020	76%	72 yrs.	14	23%
Belgium	0.0	—	6,780	87	71	14	23
West Germany	-0.2	—	7,380	92	71	17	21
East Germany	-0.2	—	4,220	76	72	14	21
Fast-growing countries							
Bolivia	2.9%	24 yrs.	$ 390	34%	48 yrs.	157	42%
Kenya	3.3	21	240	10	50	119	46
India	2.0	35	150	21	49	129	40
Indonesia	2.4	29	240	18	48	137	44
A country in transition							
Mexico	3.4%	20 yrs.	$1,090	64%	65 yrs.	66	46%

a. G.N.P.: Gross National Product, a measure of a country's wealth.
b. Infant Mortality: Number of deaths per 1,000 live births.

Countries approaching or at zpg are different in many ways from countries which are growing rapidly (even though there may be recent slight declines in fertility).

1. Examine the table above for important differences, and note what you observe below (the first answer is given as an example).

	Fast-growing countries	No-growth countries
Per capita G.N.P.:	Low wealth per person	Higher wealth per person
Urban population:	_____	_____
Life expectancy:	_____	_____
Infant mortality:	_____	_____
Population under 15:	_____	_____

2. Describe briefly how Mexico—which is changing rapidly—is like a fast-growing developing country in some ways and how it is becoming like a slow-growing developed country in other ways.

MATCHING

A	B
☐ 1. zero population growth	a. % of population in various age groups
☐ 2. stationary population	b. a characteristic of a stationary population
☐ 3. age structure	c. a characteristic of a population growing due to a higher birth rate
☐ 4. low fertility, low mortality	d. a nongrowing population whose age structure has also stabilized
☐ 5. more people in older ages	e. a nongrowing population
☐ 6. more people in younger ages	
☐ 7. almost all children wanted and planned	

Place in the boxes the letter of the items in column B which best match those in column A. Some can be used more than once.

TOUGH DECISIONS

(for brief essays or discussion)

The U.S., if it continues its same birth and death rates, will add about 60 million more people before reaching zpg in 2042 (these figures do not include immigration which could add millions more people and prevent the U.S. from reaching zpg at all). Should the U.S. try to slow population growth even further? Explain why and how this could be done, or why not.

The countries at or approaching zpg are relatively wealthy, industrial countries. Should they increase their aid to the poorer countries whose populations are growing rapidly? If so what kind of help should be given (donation of food, agricultural know-how, help in running population programs, money for development of industry or education of women, etc.)? If not, why not? Explain your answer.

Rapidly growing population in poorer countries will probably mean more pressure for immigration into the wealthier, slow-growing (or zpg) nations. How should they respond? Explain.

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Courtesy of the Hong Kong Family Planning Association

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These cartoons demonstrate two views. The left shows a happily balanced world as a result of zpg. The one on the right suggests that zpg might lead to extinction. Explain in your own words why some people advocate zpg and some people fear it. How would zpg affect your own life? How would continued population growth affect you?

VOTE!

Divide into groups of about five people. Elect one person who will take notes on the discussion and who will report on the votes of the group. Discuss the following two questions and then vote. Spend about 10 minutes on each question.

1. Should the town (or suburb, city or area) you live in encourage more people and industry to settle there?
   a) would growth bring in more people to help with taxes? Would the services (sewers, streets, parks, schools, etc.) they require cost more than the taxes they pay?
   b) how would you either encourage or discourage growth in your community?
   c) if more people moved to your community, where would they live? Would there be homes for them or would large-scale developments be needed? If so where should they go? Would growth in your area be good for the schools? What about jobs? Would it bring noise and traffic or would it revitalize an area that needs it?

Vote! How many are for community growth? ☐

How many are against it? ☐

2. Immigration could stop the U.S. from reaching zpg. Should the U.S. continue its tradition of immigration (approximately 400,000 legal immigrants each year, accounting for about 1/4 of annual population growth; plus an unknown number of illegal immigrants, estimated to range from 166,000 to over one million a year).
   a) would cutting back or eliminating immigration be unacceptable due to the U.S.'s tradition of welcoming people from many lands?
   b) would continuing immigration at present levels be unacceptable because of its added growth and therefore pressure on the environment and jobs?
   c) assuming that the U.S. decides to reach no-growth in the U.S. sooner, rather than later, it would have to be through reducing immigration, births or both. Would any of these measures be better than the others? Why?
   d) most nations experiencing large-scale immigration after World War II are now questioning the wisdom of continuing that practice. If immigration is reduced, does this offend some of our most cherished ideals, such as offering shelter and compassion to those in need? What responsibility should the U.S. take toward the poorer fast growing countries?

Vote! How many are for continuing immigration at current levels? ☐

How many are for reducing immigration? ☐

How many are for stopping immigration? ☐

NATIONAL PLANNING COMMITTEE

You and three classmates will become members of the newly formed National Planning Committee. Your task is to set goals (and methods to achieve them) for the nation in terms of population size. The choices before the committee are 1) continuing on the same course of continued growth reaching zpg in the next century 2) slowing growth to reach zpg sooner with a smaller total size 3) stopping population growth immediately 4) stopping population growth as soon as possible and then returning to a smaller population size. Choose the position above that you will represent in a five-minute presentation to the class. Be sure to include your view on immigration. Then the class will vote on which growth or no-growth plan to adopt. Individuals in the class may explain why they found one plan more attractive than other plans.

MAKE A PREDICTION

Some demographers believe that due to a number of factors (changing roles of women, increased education and job opportunities for women, later age at marriage and childbearing, for example), the average number of children U.S. women have could go from the present 1.8 children to 1.6 children. This means that zpg could come about more quickly.

Others think that in the 1980s better economic opportunities (especially more jobs) will give couples the confidence to have larger families and to have them earlier—leading to an average of 2.1 children per woman or more. This means that the U.S. will never stop growing (if legal immigration continues at about 400,000 people per year). Question: which way will fertility go—up or down—or will it stay the same? Which do you prefer? Explain your answers.

FEELINGS

Photo: Harold M. Lambert

Younger workers will find less "room at the top" in a low-mortality, stationary population.

The picture above reflects the fact that in a stationary population, there will be a larger proportion of older people in the working force. This will mean fewer chances for promotion of younger workers. How do you think the younger man in the picture might feel about this? How about the older man?

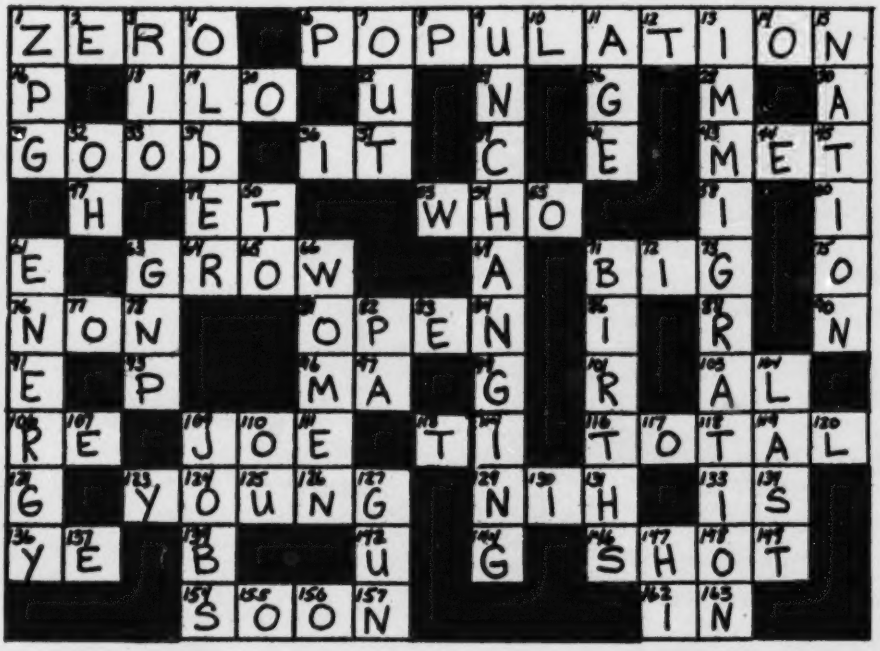
MORE ACTIVITIES

(small group or individual projects)

1. Design and demonstrate a model of a nongrowing population (births plus in-migration = deaths plus out-migration). For example, using a fish bowl to represent a particular country, add measuring cups of water to represent births and immigration and subtract cups of water representing deaths plus emigration. Change one of the factors to demonstrate growth or decrease. Think of others ways to demonstrate these concepts.
2. Create a collage using magazine and newspaper photos and headlines reflecting your viewpoint about possible futures for U.S. population trends: rapid growth (if births and immigration increase); continued slow growth; equilibrium (no-growth); no-growth followed by slow decrease.
3. Create a slide program on what a no-growth society would be like—advantages and disadvantages. Develop a script to be used with the slides (possibly recorded on cassette tape).
4. Look at the map of the countries at or approaching zero population growth (at the beginning of the essay). Why are these countries all in the northern hemisphere (with the exception of Australia, which was settled by northern hemisphere immigrants)? See a geography or anthropology book for clues to the relationship of ecology to the development of civilizations.

ANSWERS

Population Puzzle



Observing and Comparing

	Fast-growing countries	No-growth countries
Urban population:	mostly rural	mostly urban
Life expectancy:	short life expectancy	long life expectancy
Infant mortality:	high infant mortality	low infant mortality
Population under 15:	large percentage under 15	low percentage under 15

Matching

1-e, 2-d, 3-a, 4-b, 5-b, 6-c, 7-b

FOR FURTHER READING AND RESEARCH

SUPPLEMENTAL READING

Population and the American Future (1972), New American Library, Inc. (P.O. Box 999, Bergenfield, NJ 07621); Signet paperback, $1.50. Report by the President's Commission summarizing reasons for their recommendation that ". . . the nation welcome and plan for a stabilized population."

Population: A Clash of Prophets (1973) edited by Edward Pohlman, New American Library, Inc. (see address above); paperback, $2.95. A cross-section of opinions on population issues by leading authorities.

The American Population Debate (1971) edited by Daniel Callahan, Anchor Books (Doubleday & Co., Garden City, New York); paperback, $2.50. A variety of positions on American population growth and its implications for the quality and future of American life.

"The Benefits of Zero Population Growth" (1977) by Zero Population Growth, Inc. (1346 Connecticut Ave., N.W., Washington, D.C. 20036); single copies free with self-addressed, stamped envelope; 2-49 copies, 12¢ each; 50-199, 11¢ each. A 2-page leaflet which deals with economic, energy-related and environmental aspects of zpg.

"U.S. Population Fact Sheet" (1978) Zero Population Growth, Inc. (see address above); single copies free with self-addressed, stamped envelope; 2-49 copies, 8.5¢ each; 50-199, 8¢ each. A one page leaflet containing up-to-date information on current U.S. population figures and future population projections.

AUDIOVISUAL AIDS

"Population and the American Future" (1972). Two half hour films which can be used independently (second reel presents various viewpoints on abortion); film version of the President's Commission Report (see above paperback). Can be rented for $10 from ZPG (address above) or Population Reference Bureau.

"The Science and Ethics of Population Control: An Overburdened Earth?" Two 18-minute slide/tape or 33 rpm record programs. The first section deals with U.S. population; the second, developing countries. The program can be purchased for $139.50 from the Center for Humanities, Inc., Two Holland Ave., White Plains, NY 10603, or rented for $5 from ZPG (address above).

POPULATION REFERENCE BUREAU MATERIALS

"What Will a ZPG Society Be Like" (1978) by Lincoln H. Day. *Population Bulletin,* Vol. 33, No. 3 of PRB series of paperback Bulletins and accompanying slides. Single copy, $1.50; 2-49 copies, $1.25; 50 copies or more, $1.00 each. Set of 7 colored slides, $3.50.

"The Elderly in America" (1975), *Population Bulletin,* Vol. 30, No. 3. Single copies, $1.00; 2-49 copies, $.75 each; 50 copies or more, $.60 each.

"U.S. Population in 2000—Zero Growth or Not?" (1975), *Population Bulletin,* Vol. 30, No. 5. Single copies $1.00; 2-49 copies, $.75; 50 copies or more, $.60 each.

Population Handbook (1978) by Arthur Haupt and Thomas T. Kane. Single copies, $2.00; 2-49 copies, $1.75 50-99 copies, $1.50. An easy-to-read guide to population dynamics for students and teachers. The *Handbook* contains definitions for basic population terms, explanations of basic concepts in demography and a statistical guide to calculating basic demographic rates.

1978 World Population Data Sheet. Single copies, $.50; 2-49 copies, $.35 each; 50 or more, $.25 each. A two-color wall chart which provides current population data for 162 countries, various regions, and the world.

To order additional copies of PRB teaching modules, see back cover.

INTERCHANGE AND TEACHING MODULE SERIES

1. *The Cost and Value of American Children,* September 1977
2. *American Way of Life: A Way of Death?* November 1977
3. *Marriage, Divorce, and Living Together,* January 1978
4. *World Population: Growth on the Decline,* May 1978
5. *Population Density and Mobility in The United States,* September 1978
6. *The Future and Population: What Will a No-Growth Society Be Like?* December 1978

Back issues are available for $1.00 each; two or more copies, $.50 each. Send check to the Population Reference Bureau, Box 35012, Washington, D.C. 20013.

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